Indians of all ages have far less expectation of life than Englishmen in England; worse still, the Indian expectation has been diminishing these twenty years while the Englishman's has been increasing. In 1911 an Indian 20 years of age had a life expectation of 27.5 years—one year less than he had in 1901. The Englishman of the same age in the same period had increased his expectation from 41 to 43.7 years.

It is a sad picture. Not all the census figures are sad though. One table shows wages in India between the years 1900 and 1912 rising from 119 to 166, while the average of prices had only risen from 122 to 141. In England in the same period wages rose from 100 to 103 and prices from 100 to 109. Wattal thinks this peculiar though he has no reason to doubt the figures. Another datum that troubles him is the number of people to a house. It has fallen during the last three decades from 5.8 to 5.4, 5.2, and 4.9. Surely that is a gain.

Another comforting fact that the author does not mention is that the census shows Indian population growing at the rate of 2,000,000 a year, 8,000,000 since the book was written, and still it has found subsistence. If the limit of food is near, surely there must be evidence on every hand in India that famines are more frequent and that life is harder than formerly: the author offers none.

However, his main point is beyond doubt. India has too high a birth rate.

MARK JEFFERSON

TOWN PLANNING IN ANCIENT INDIA

C. P. VENKATARAMA AYYAR. **Town Planning in Ancient Dekkan.** With an Introduction by Patrick Geddes. xxi and 199 pp. The Law Printing House, Madras. $2.00. 7 x 5 inches.

A collection of references to town and house construction in the old Tamil writings, with comments by the author. One can hardly say that old Dekkan did any town planning. There were some habitual features. Different arts and trades had streets to themselves. The elephant trainers had broad avenues to exercise their animals. The temple tended to be a central feature; and, except in river towns, there was an ample tank of drinking water containing sufficient water even if the monsoon failed. This was commonly bordered by trees and gardens, in which beauty was prized but "sanitation" was sought—in an oriental way. Punnai trees were planted by the seashore, because this tree grows "in sandy soil. Its smell keeps off the bad odours of fish." Trees bearing nutgalls were valued for planting alongside the water tanks because the tannin in their fruit gives a "slightly sweet taste to the water and thus masks any excess of chlorine in drinking water."

MARK JEFFERSON

VOLCANOES OF EASTERN BALI

G. L. L. KEMMERLING. **De Vulkanen Goenoeng Batoer en Goenoeng Agoeng op Bali.** Maps, diagrs., ills. *Jaarboek van het Mijnwezen in Nederl. Oost-Indië*, Vol. 46, 1917, Part I, pp. 50–77. Batavia.

Kemmerling's account of the two volcanoes on Bali is preceded by a study in the same yearbook (pp. 1–48) of a destructive earthquake by which the southern side of that beautiful island was visited in January, 1917. It may be here noted briefly that the earthquake had an undulatory motion and is ascribed, not to volcanic action, but to structural deformation between the up-raised chain of islands and the deep floor of the adjacent Indian Ocean. It is reported that 74,000 buildings, or 90 per cent of the total number, were overthrown or injured, 1,358 persons were killed, and 1,060 wounded. Great damage was done by landslides, of which a number of good views are given, in unconsolidated volcanic deposits on the sides of ravines and on the inner ring-wall slope of the Batur (Batoer) caldera.

Both the volcanoes described are in the eastern part of Bali. Gunung (Mount) Agung, or the Peak of Bali, is a fine young cone of regular form, 3,142 meters in altitude, with a summit crater ½ kilometer in diameter; the long exterior slopes, largely built of lavas, are little dissected. The Gunung Batur mass, farther west, is much more complex. It consists primarily of the remains of a great cone, the top of which has broken down to caldera form, but the caldera is now more or less filled with the products of later eruptions; the down-wash of recently erupted material from the exterior slopes of the remnant cone has largely contributed to the aggradation of the piedmont lowlands. The caldera bears the marks of two engulfments; the earlier one produced a ring wall of elliptical outline, 13.8 and 10 kilometers